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ABSTRACT

The effects of the familiarity of setting and partner on the social behavior of infants was studied. Subjects were 22 infants 6-18 months old. Eleven of the infants were in a day care center; the remainder were cared for at home. In the first portion of the study, the day care infants were observed interacting with each other in the nursery setting. Later, an unfamiliar infant (not in day care) was paired with a day care infant and observed for 15 minutes three times at weekly intervals. All incidents of social behavior was recorded by an observer. A greater incidence of social behavior was observed in the familiar-unfamiliar pair. An exploration of novelty explanation was given for this finding. (ST)

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Infants' Social Behavior in a Naturalistic vs. Experimental Setting[1]

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Research on social interaction between infants under two years of age has been very sparse. This lack of research may be partially due to the conviction of many that social interaction between very young children is essentially non-existent. Charlotte Buhler was one of the first to study the development of infants' social reactions to other infants. In her classic 1927 study, infants were placed together in an experimental play situation. Those under 12 months of age showed only limited social interaction, whereas older infants tended to show more interest in the other infants. Similar findings were reported by Moudry and Bakula (1939) and Shirley (1933).

These findings of limited social interaction among peers during infancy are especially provocative when contrasted with the very early responsiveness of infants when interacting with their mothers and other adults. There are various plausible explanations for this difference in responsivity. It is obvious that the first persons in the infant's life are adults. Any social behavior, then, has its beginnings in the adult-infant relationship. The average infant does not normally come into contact with other infants until he is several months old; and even then, the contact is usually less sustained and less frequent than that occurring with adults. In the previously cited studies by Buhler (1927), Moudry and Bakula (1939), and Shirley (1933), the social interaction observed was between pairs of infants who were largely unfamiliar with each other and who had had limited prior experience with other infants.

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Perhaps this lack of experience with other infants serves as a limiting factor in establishing social contact.

In contrast, Bridges (1933) and Bühler (1930) did observational studies on institutional children living in groups with similar age infants. They found that the social adjustments to other children lagged behind their social response to adults. Little interaction other than watching each other was observed prior to 9 months of age. In both of these studies, however, the infants under 12 months of age were normally confined to their cribs and were allowed almost no contact with other infants. Thus, conclusions regarding the scarcity of social interaction among these infants are perhaps due to experimental artifacts. The infants studied in the above research included either those who were restricted to only limited contact with other infants or those who were paired with unfamiliar infants in an unfamiliar setting. Little research on infant interaction was found in which these two limiting conditions were not present.

The question of the development of infant social behavior becomes especially important when one considers the increase in day care facilities for the very young infant. Existing information on social behavior among infants was collected primarily in the 1930s -- often under very artificial experimental conditions. It is quite likely that these conditions did not elicit the infants' optimal level of social functioning.

The present study was designed to investigate the effect of the familiarity of setting and partner on the social behavior of infants. Specifically, does the social behavior of day care infants change when they are placed in an experimental setting with a strange (non-day care) infant?

METHOD

Subjects

The subjects were 22 white infants ranging in age from 6 to 18 months. Eleven of the subjects were day care infants who made up the total population of the Cornell day care center. At the time of the study these infants had been together for a minimum of 3 months. The remaining 11 infants were from the same community but were not receiving day care. The day care sample consisted of 5 boys and 6 girls while the non-day care sample consisted of 6 boys and 5 girls. For the purpose of data analysis the infants were divided into three age groups: Youngest (6 to 10 months), Middle (11 to 14 months) and Oldest (15 to 18 months), with 9, 8, and 5 infants in each group respectively. These particular divisions were chosen to render the results more comparable to the results of earlier studies and also because of the separation by age within the Cornell day care program. All the non-day care infants were strangers to the day care infants.

Setting

The Cornell Infant Development Center was the setting for the naturalistic part of the study. This nursery setting consisted of one large carpeted room which held six cribs arranged along the walls. The center of the room was open and an assortment of toys which were scattered on the floor were freely available to the infants. The infants in the Cornell program received care for half a day. The morning group consisted of six infants from 11 to 17 months of age and the afternoon group included five infants ranging in age from 7 to 10 months. Two caretakers were responsible for the infants.

The experimental part of the study was conducted in a small, carpeted room located near the nursery. The room was equipped with a one-way mirror and sound system. Contained in the room were two chairs and a small table. Several toys were scattered on the floor.

Procedure

For the naturalistic portion of the study twelve, ten minute daily observations were made of each day care infant in the natural nursery setting. The time and order in which the babies were observed varied randomly from day to day. Observations were made from behind a one-way mirror.

In the experimental part of the study each day care infant was paired with an unfamiliar infant who was not receiving day care. A day care infant and a non-day care infant within the same age group were brought to the experimental room. In order to make sure the infants were comfortable and unafraid, a parent accompanied each infant.

Prior to entering the room the parents were told that the purpose of the study was to observe the infants' reactions to each other, and that their presence was necessary for the baby's comfort. Upon entering the room, the infants were placed on the floor, facing each other, about two feet apart. The parents were told to play with their children a moment to get them comfortable and then to move back to the chairs. The parents were asked to refrain from interfering with the infants' activities and if approached by their baby, were to encourage him to return to the play situation.

The experimental sessions were 15 minutes long. Each day care infant was paired with a non-day care infant three times at weekly intervals, each pairing involving a different non-day care infant. All experimental sessions were scheduled during the month of naturalistic observations.

Each instance of social contact was recorded by a written description of the action. Briefly, social contact was broadly defined to include any physical, visual, or vocal contact with another infant or contact with another infant's play material. (A more complete description is presented on page I of the handout).

All observations in both settings were done by a single observer. Three different observers were used to check inter-observer reliability concerning the criterion of social contact. The average agreement on interactions which were recorded as social contact was 91%.

RESULTS AND DISCUSSION

Analyses were done on the social behavior of only the day care infants in the two different settings. In this study three different aspects of social contact were observed 1) Social episodes: A social episode was defined as the total involvement of one infant with another. Each social episode would normally consist of several sequential social contact behaviors. (For a written definition of the terms used in this study, refer to page I of the handout). 2) Amount of time spent in social contact, and 3) The frequency of the various behavioral types. Social contacts were divided into 4 types of specific behaviors; watching, friendly, aggressive, and neutral. [(Originally, social contacts had been divided into six different behavioral types. However, as two of the categories (imitation and chance contact) occurred very infrequently, they will not be discussed here. These 6 categories were primarily based on those used by earlier researchers)].

Table 1 (page IXI) presents the mean number of social episides for each age group and setting. Results of an analysis of variance yielded only one significant difference--that is, a greater number of social episodes

occurred in the experimental setting. This finding is indeed puzzling as the infants were confronted with both an unfamiliar infant and unfamiliar setting. The infants, especially the middle and older ones, tended to show signs of uneasiness and wariness when they entered the experimental room. One possible explanation for the high frequency of social contact in the experimental session may be that the infants in this setting were more confined and surrounded by fewer distracting stimuli than in the naturalistic setting. It was almost impossible for them to "get away" from the other infant. Another explanation might be that instead of being perceived as frightening, the other infant and the room were perceived as novelties and hence something to be explored. Although somewhat leary of each other, the infants seemed very interested in each other and seemed to watch the other infant closely.

In a previous study by this author, it had been observed that a great percentage of the younger infants' social episodes consisted entirely of looking at the other infant. Therefore, an attempt was made to analyze only interactive episodes, that is, those episodes in which the infant's partner in some way responded to the social contact. Essentially, all social episodes which only involved one of the infants were subtracted from the total number of social episodes. Table 2 (page III) shows the mean proportion of interactive to social episodes for each age group and setting. An analysis of variance showed the differences on the main effects of age and the interaction between age and setting to be significant. Further tests revealed that the youngest and middle infants behaved differently in each of the two settings. The youngest infants exhibited a greater proportion of interactive to social episodes in the experimental setting while the middle infants exhibited significantly less interactive to social episodes in the experimental setting. Thus, of the three ages, the middle infants were most detrimentally

affected by the experimental setting. The proportion of interactive to social episodes declined sharply among the middle infants when placed in the experimental situation. The middle infants appeared to be more inhibited in their interactions in the experimental setting. They were more cautious of the other infant and, consequently, about 35 percent of their social episodes consisted primarily of watching the other infants. This is in contrast to the naturalistic setting where only about 20% of the middle infants' social episodes were of this type. The youngest infants, on the other hand, exhibited a greater proportion of interactive to social episodes in the experimental setting. This may suggest that the youngest infants are not as inhibited or influenced by an experimental setting as are the other two infants. Perhaps they are not yet as readily able to perceive the strangeness of the experimental setting.

Also of interest was the amount of time the infants spent in social contact in the two settings. Table 3 (page 17) presents the mean time (in seconds) spent in social contact per 15 minutes for each age group in each setting. An analysis of variance showed a difference between settings with a greater amount of time spent in social contact in the experimental setting. This is contrary to expectations and would seem to indicate that the unfamiliar infant and setting were not frightening so as to reduce the amount of time spent in social contact. Rather, the other infant might have been seen as something novel--something to be watched and studied. The mean time spent in social contact did not differ significantly with the age of the infant nor was there a significant effect due to the interaction of age and setting.

It is evident that the experimental setting generally did not limit the quantity of social contact; however, the question arises as to whether the

quality or characteristics of social contact differed in the two settings. Table 4 (page IV) presents the mean proportion of the four behavioral types for each age group and setting. Results of t-tests for correlated measures showed that the proportion of watching behavior was significantly greater in the experimental setting for both the middle and oldest infants. The difference between the youngest infants was in the same direction but was not significant. Strangely enough, friendly behavior was significantly greater in the experimental setting among the youngest infants but not for the other groups. Aggressive behavior was significantly less in the experimental setting for the middle infants. Although the youngest and oldest infants also exhibited less aggression in the experimental setting, the difference was not significant. Similar results were obtained when neutral behavior was looked at. All three groups showed less neutral behavior in the experimental setting with the difference between setting being significant for the youngest and middle infants.

Thus, the characteristics of the social contact changed markedly when the infants were placed in an experimental setting with an unfamiliar infant. The infants spent more time in tentative exploratory behavior and were not as apt to be involved in close physical contact with the other infant. The difference in behavior in the two settings was especially striking regarding watching behavior which was noticeably more prevalent in the experimental setting for all three age groups. Also, the proportion of watching behavior, which decreased with age in the naturalistic setting, remained high for both the middle and oldest infants in the experimental setting. It is almost as if the middle and oldest infants had reverted to earlier forms of interaction when placed in a strange situation. The total frequency of social contact did not diminish in the experimental

setting, but the form of social contact did change. The results of the present study may provide partial explanation of the results obtained by Maudry and Nekula (1939) and Shirley (1939). These researchers found very little social behavior other than watching among infants under 13 to 14 months and thus concluded that social behavior is largely absent in young infants; however, the infants in both of these studies were paired with unfamiliar infants in a strange setting. It seems likely that these early researchers were not observing the infants' optimal levels of social functioning. These infants, too, were probably affected by the other strange infants and unfamiliar setting. Hence, the behaviors recorded reflect, to some extent the effects of the setting.

Footnote

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OBSERVATIONAL MEASURES

Social Contact -- Behavior to be recorded as social contact was operationally defined as follows:

A Physical
1) Any physical contact with another infant (Except for accidental brushing against another infant while walking, reaching for a toy, etc., which elicited no response from the other infant)
2) Grabbing for, manipulating or playing with a toy or object that another is playing with (this also excludes accidental brief touches as above)
3) Parallel play-- both infants are playing in close proximity with the same or similar toys and are aware of each other although not actually playing with each other

B Visual
1) Prolonged visual following of another infant (or watching the other infant).
2) Imitative behavior.
3) Vocalizing to another child.
4) Gesturing to another child.

Social Episode -- A social episode was defined as the involvement of one infant with another. Each involvement or social episode would normally consist of several sequential social contact behaviors.

Interactive Episode -- An interactive episode was defined as an episode in which the infant's partner in some way responded to the social contact. Essentially, all social episodes which only actively involved one of the infants were subtracted from the total number of social episodes.

BEHAVIORAL TYPES

The four behavioral types analyzed in this study and a brief description of each are outlined below:

Behavioral Types	Description
Watching	Behavior which dealt with watching or looking at the other infant.
Friendly	Behavior toward the other child which was positive in tone, e.g., smiling, babbling, playing cooperatively.
Aggressive	Behavior toward the other child that was negative in tone, e.g., hitting, biting, taking away his toy.
Neutral	Behavior which was essentially neutral in tone but could be either positive or negative depending on the situation, e.g., following the other infant, grabbing the other infant.

Table 1

Mean Number of Social Episodes per 15 minutes in Two Settings for Each Age Group

Age	Setting	
	Naturalistic	Experimental
6 - 10 months	6.26	9.52
11 - 14 months	6.93	11.00
15 - 18 months	6.90	9.65

Significant F (setting) = 17.95 df=1 $p < .05$

Table 2

Mean Proportion of Interactive/Social Episodes For Each Age Group and Setting

Age	Setting	
	Naturalistic	Experimental
6 - 10 months	.61	.73
11 - 14 months	.80	.66
15 - 18 months	.78	.76

Significant F (age) = 5.85 df=2 $p < .05$
Significant F (age x setting) = 5.056 df=2 $p < .05$

Table 3

Mean Number of Seconds Spent in Social Contact per 15 Minute Period by Age and Setting

Age	Setting	
	Naturalistic	Experimental
6 - 10 months	83	158
11 - 14 months	110	178
15 - 18 months	104	188

Significant F (setting) = 14.20 df=1 $p < .05$

Table 4

Proportion of Each Behavioral Type by Age Group and Setting*

Age	Setting	Behavioral Type			
		Watching	Friendly	Aggressive	Neutral
6 - 10 months	Naturalistic	.36	.31	.09	.19
	Experimental	.45	.37	.06	.07
11 - 14 months	Naturalistic	.26	.25	.15	.29
	Experimental	.41	.25	.08	.19
15 - 18 months	Naturalistic	.24	.27	.20	.25
	Experimental	.39	.30	.07	.19

*The two most infrequently occurring categories (imitative behavior and chance contact) have been omitted from this table.